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ABSTRACT

The system being tested for the U.S. Navy civilian workforce to integrate equal employment opportunity (EEO) goals into an accountability and tracking system for effective management action is described in this report. The system is described as one that moved from a top down modeling oriented system previously used to a bottom up information system supplemented by models, which would tie together external labor supply projections with accountability and historical tracking capabilities. Particular emphasis is given in the report on using available labor pool methodologies and data sources. Topics discussed include the following: external labor market analysis concepts, testing of a relevant labor pool model for the Navy's EEO goal system for those occupations and career levels where the labor market is local, relevant labor pool methodology, data sources for obtaining preliminary statistics for estimating the relevant labor pool, and a system for EEO goals planning and accountability and how the system is to be used by the Navy. (TA)

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OCP RESEARCH REPORT NO. 33

# EXTERNAL LABOR MARKET ANALYSIS AND EEO GOALS PLANNING

by

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## Introduction

An EEO goal is an extremely complex number. It depends on conditions and requirements in both the external and internal labor markets. These goals must be integrated into an accountability and tracking system for effective management action. This report describes the system being tested for the U. S. Navy Civilian workforce.

Since 1975, intensive research efforts supported by the Navy Personnel Research and Development Center have been underway to make the Navy's EEO goals policy more realistic. Concentration has been on planning and accountability methodologies with a recognition of the need to develop the labor market analysis part of the system. Models to assist at both the headquarters and local levels have been suggested and summarized by Charnes, Cooper, Lewis, and Niehaus [4]. Also, at the request of the Assistant Secretary of the Navy (Manpower and Reserve Affairs), a reduced version of the headquarters model was developed as discussed by Burroughs and Niehaus [3]. At this point, there was clear interest in the Navy to move forward towards implementation. Preliminary work was accomplished by Burroughs, Korn, Lewis, and Niehaus [2] to develop a methodology to develop the goals. This was followed by very useful work by Lewis [11] concerning the development of preliminary prototypes and an initial system concept for implementation.

The next step, which is underway, is to conduct operational tests at the headquarters and local levels. These tests are being conducted in the Naval Sea Systems Command (NAVSEA) with the enthusiastic endorsement of VADM Bryan, Commander, NAVSEA. This study covers approximately 100,000 employees in 22 local labor markets.

The NAVSEA studies forced a full scale review with substantial changes in the system concept. In particular the decision was made to move from a top down modeling oriented system to a bottom up information system supplemented by models. The system will tie together external labor supply projections with accountability and historical tracking capabilities. Later versions will most likely move towards a strengthening of the modeling capabilities as more becomes known through the actual operation of the system. [1]

External Labor Market Analysis Concepts

The crux of external labor market analysis is to try to mirror as close as possible those qualified and available to take jobs that are offered. While there are many sociological factors involved, the critical issues remain economic and satisfying employment regulations. Attention, then, focuses on relevant labor pool methodologies and

1 See also Chapters III and IV of Niehaus [12] for an extensive discussion of EEO planning and external labor market analysis.

data sources which are defined and discussed in detail in this paper. The solution to the basic problem of relevant labor pools can be summarized as:

1. Development of a statistical procedure for determining relevant labor pools that is technically and legally defensible.
2. Development of soft data support cases for the statistical procedures.
3. Blending the statistical and support data with the legal case and organization's Affirmative Action Plan.

The fundamental building block of the Navy's system is projections of the regional labor markets by occupation and level. These data are to be developed through a combination of local, regional, and national statistics. Among the factors which are being considered for the U. S. Navy system are (1) ethno-sexual group representation, (2) occupation education requirements, (3) geographic area, (4) expected (or desired) wages, (5) employment status of applicants, (6) occupational choice, (7) career progression and job characteristics (e.g., annual number of hours worked, weeks worked, etc.). [2]

2 These factors are similar to those required by the Office of Federal Contracts Compliance for Affirmative Action Plans for government contractors.

For purposes of calculations, it was found that four race groups were appropriate: Black, Hispanic, Other Minority, and White. When combined with male and female characterizations, eight race-sex (ethno-sexual groups) result. To determine the appropriate occupations, the Civil Service Commission was consulted and two subgroups of jobs (white collar, blue collar) defined. It was learned that the CSC PATCO (Professional, Administrative, Technical, Clerical and Other General Schedule) groupings were appropriate for white collar occupations and various upgraded pay plans for blue collar. For the Navy, the Professional category was split into Scientists and Engineers and Other Professionals. This was done since the Navy has large numbers of scientists and engineers within its unique labor force. In the blue collar area which is separate from the Other General Schedule, the Navy system groups the occupations into the Craftsmen and Operators, and Laborers categories. Five career levels or grade groupings were also found to be appropriate (i.e., GS 1-4; 5-8; 9-12; 13-15; and 16-18 for General Schedule Personnel and Apprentice; Helper or Semiskilled; Journeymen; Leader; and Supervisor for ungraded personnel). [3]

Geographic and educational criteria as shown in Figure 1 were determined for each of the major occupation groups and grade/level groupings. Once constructed, these criteria were checked with the civilian personnel

3 See Secretary of the Navy Instruction 12280.9 of 31 Oct 1977 for the precise definitions of the occupation-level categories.

| | SCIENTISTS AND ENGINEERS | OTHER PROFESSIONAL | ADMIN-ISTRATIVE | TECHNICAL | CLERICAL | OTHER |
|---|---|---|---|---|---|---|
| GS 1-4 | – | – | – | LOCAL HIGH S/EQ. | LOCAL HIGH S/EQ. | LOCAL HIGH S/EQ. |
| GS 5-8 | NATIONAL COLLEGE/EQ. | NATIONAL COLLEGE/EQ. | LOCAL/ REGIONAL HIGH S/VOCAT/ COLLEGE/EQ. | LOCAL/ REGIONAL HIGH S/VOCAT/ EQ. | LOCAL HIGH S/EQ. | LOCAL HIGH S/EQ. |
| GS 9-12 | NATIONAL COLLEGE/EQ. | NATIONAL COLLEGE/EQ. | REGIONAL VOCAT/ COLLEGE/EQ. | REGIONAL VOCAT/EQ. | LOCAL VOCAT/EQ. | LOCAL VOCAT/EQ. |
| GS 13-15 | NATIONAL GRADUATE/EQ. | NATIONAL GRADUATE/EQ. | NATIONAL GRADUATE/EQ. | REGIONAL VOCAT/EQ. | – | – |
| GS 16-18 | NATIONAL GRADUATE/EQ. | NATIONAL GRADUATE/EQ. | NATIONAL GRADUATE/EQ. | – | – | – |

(SIMILAR TYPE OF CRITERIA USED FOR UNGRADED WORKFORCE—LABOR MARKET IS LOCAL)

U. S. NAVY GEOGRAPHIC AND EDUCATIONAL CRITERIA FOR LABOR MARKET SUPPLY RATIOS

FIGURE 1

staffing experts for the Navy. The occupation education requirements are clear for the Scientists and Engineers and Other Professional job categories. Also the geographic area is national since the Civil Service Commission registers are national and the student bodies of many professional schools and universities are drawn from diverse areas.

The Administrative job category criteria change as one moves up the career hierarchy. At the entry levels the labor market is local or regional depending on the type of administrative job involved. The region in this case is the Civil Service Commission examining region. Educational requirements can also vary considerably with on-the-job experience substituted for formal education. As one moves up to higher grades, the criteria becomes broader indicating the enlarged recruitment area and the need for more qualifications. The Technical job categories for the Navy are essentially two different labor markets. At the low end the jobs can be characterized as technician aids while at the higher end the job content approaches that of a highly specialized professional. This is particularly true for the Navy since there are a considerable number of, draftsmen, engineering and electronics technicians in the laboratories. The Clerical occupation labor market is locally oriented. The Other General Schedule occupations are a mixture with the greatest proportion being firemen, guards, and police. In most cases the labor market for the blue collar jobs is local.

A significant effort was made to identify a useful and well specified local labor area for each defined job class. It was found that the Navy had 100 or more employees in approximately 65 labor market areas. Identification of the labor markets was accomplished in a multistage process. First, counts were obtained of civilian personnel for each installation. These data were sorted by a geographic location code to see what appeared to be the most logical labor markets through consultation of maps containing SMSA, county, and local commuting patterns as reflected by roads and waterways. A first cut was made at establishing the labor market consistent with the public data files such as the Current Population Survey (CPS) and Survey of Income and Education (SIE). In areas where the local labor market was not clear a 10 percent sample of all persons hired in the last two years is being obtained. The places of residence of such personnel at the time they made their application for employment is identified and classified to determine a local labor market area. In a number of instances it was found difficult to prejudge what was the relevant labor market.

As will be discussed in the next section, the expected wage is likely to differ across labor market areas. For this reason the Navy is testing a relevant labor pool model for its EEO goals system particularly for those occupations and career levels where the labor market is local.

Time phasing considerations are important. The two most important time phased factors which influence the size of the relevant labor pool are the changes in the labor force participation rate and supplies of personnel from educational and training institutions. As is well known, the labor participation rate for women has been increasing rapidly for many years. The Bureau of Labor Statistics show that this increase is projected to continue although at a lower rate through 1990.[4] The main factor behind the projected slowdown is a drop after 1980 in the number of women in the ages at which people enter the labor force. BLS projects the labor force participation rate of prime age (25-54) working women to grow from 55.0 in 1975 to 63.6 in 1990. This compares with the rate of 94.5 for working men in 1975 to 93.7 projected for 1990. Although there is a gradual increase in the labor force participation rate for women, they will comprise 40.8 per cent of the labor force in 1980; 41.4 per cent in 1985, and 42.0 per cent in 1990.

Occupational and work skill qualifications of persons have a considerable impact on the number of persons in a relevant labor pool. For example the Navy along with many other organizations would be happy if larger numbers of men chose to enter the secretarial occupations. There are more men entering these occupations but for the near term the clerical occupations are largely composed of women incumbents. Similarly, while

4 See H. N. Fullerton, Jr., and P. O. Flaim [6].

the firemen and police occupations have been opened up to women, they have been largely male domains.

On the blue collar side, encouragement for more women to apply has not always met with success. A factor influencing the blue collar labor market for the Navy is that experience for entry into the civilian jobs may have come as a result of training obtained in the armed service in combat designated jobs. Also, the veterans preference laws have tended to restrict entry opportunities for women in craft related jobs. To account for this fact, the relevant labor pool data are adjusted to reflect the percentage of entry jobs likely to be encumbered as a result of veterans preference. An interesting sidelight of this analysis is a quantitative measurement of the impact of the veterans preference laws. These data in turn may influence future government wide policy and legislation.

In a merit system, career progression also depends upon time in grade. For example, the Whitten Amendment requires that one spend at least one year in grade before promotion is possible to the next eligible grade. Generally, promotions do not occur in one year intervals in a lock step sequence. At the higher grades, the time between grades tends to be several years. At the highest levels, it can be expected to take at least 15-20 years to attain the necessary experience to be upgraded to an executive position.

Labor market supply ratios will be developed for the Navy system for the occupation-level groups indicated in Figure 1. These data will be a combination of values obtained by a relevant labor pool methodology with national estimates as appropriate. [5]

Relevant Labor Pool Methodology

One of the most advanced external labor market analysis systems is the RLP Methodology. [6] It has the advantage of versatility, being applicable to labor markets of any size and adaptable for use by organizations in virtually any industry. The method employs an economic behavior technique and examines the relevant labor pool from the realistic prespective of the principle of "expected wage," which says that: [7]

1. An employed person will not change jobs if what is perceived as the "expected wage" is less than he or she is earning; and
2. A person without a job will not take one that offers a lower expected wage than what he or she gives up and expends by not working.

5 The methods to determine the national statistics will be similar to those reported in Chapter V of Lewis [11].
6 The RLP Methodology was developed by D. M. Atwater and J. A. Sheridan. See Chapter IV of [12] for a more comprehensive discussion of the technology.
7 The technical term for expected or desired wage is the reservation wage. References in the economic literature will focus on reservation wages, the value of a person's time and the labor participation decision. See G. S. Becker [1] and T. W. Schultz [14].

The accuracy of analyses based on the expected wage principle requires only that persons behave in an rational economic manner (i.e., calculate expected wages and compare them with market wage offers) which several studies have shown to be the case.[8]

A flow diagram showing the RLP Model design is shown in Figure 2. The model starts with individuals in the civilian population of women and men as reflected in public data files. The first question that is asked is whether an individual is institutionalized. If so then the person is not available for employment. Next, an age filter is used to again delimit the population. Those available for work are then passed through a filter to determine if they are full-time, full-year workers. If the answer is yes then the question is asked whether the wage of a particular job meets the expected wage. If it does not, then the record is retained to consider it for other jobs. If it does then a check is made to see if the individual has the work skills for the job. If so, then the individual is placed in the relevant labor pool from full time workers. If not then the record is retained for consideration for other jobs. For those not full-time workers a similar process is accomplished. An additional step is added to determine if the individual might be a full-time worker if the job is offered. The results from all these data comparisons are the relevant labor pools for each of the job categories by race and sex.

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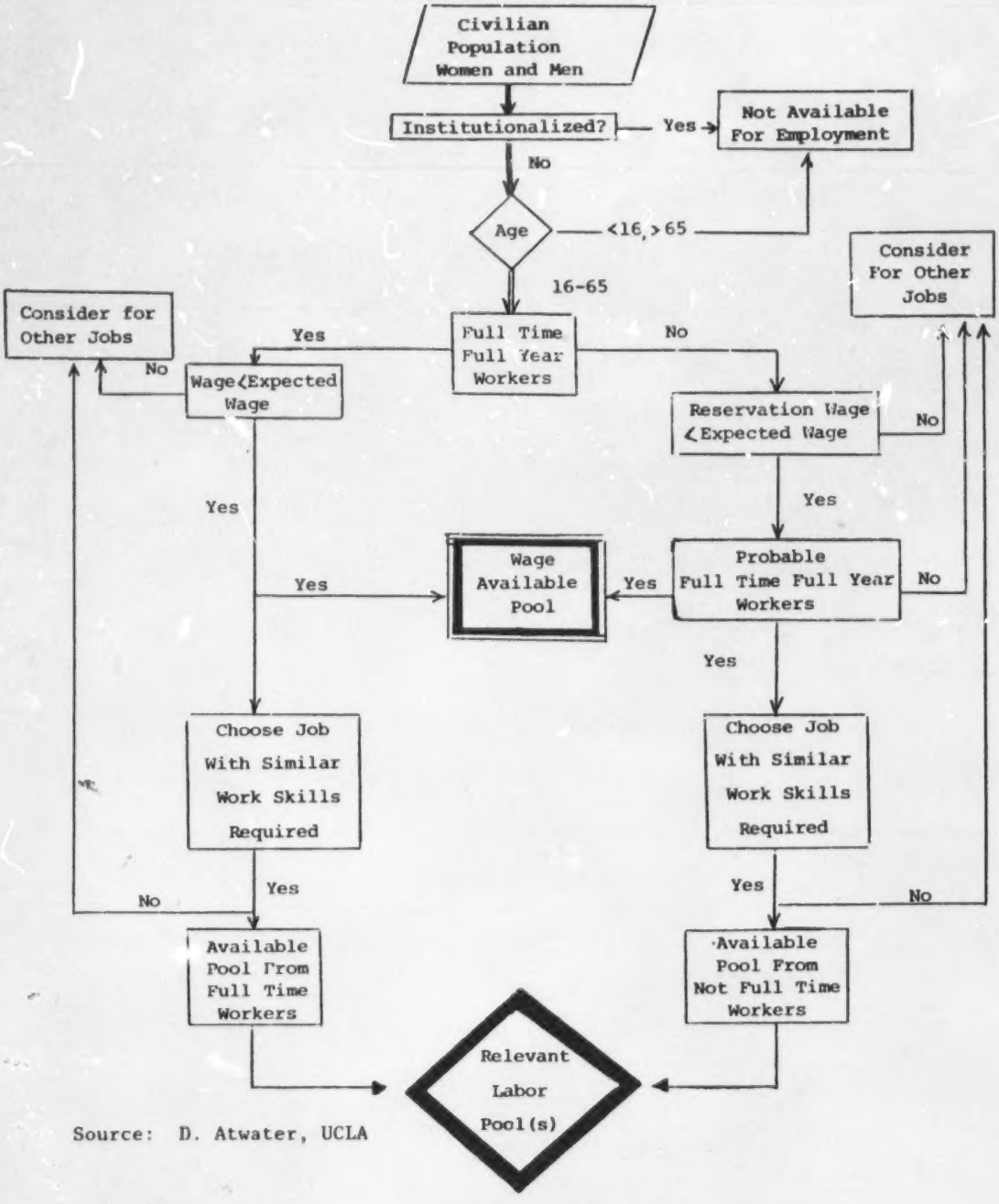
8 See J. Cogan [5], G. Hanoch [8], R. Gronau [7], and J. J. Heckman [9].




Source: D. Atwater, UCLA

RLP MODEL DESIGN

FIGURE 2
12

The relevant labor pool must be calculated using the kinds of data indicated on Figures 3 and 4. The kinds of data indicated on Figure 3 are for individuals on public data files which have been computerized. This data is used in conjunction with Navy data of the kinds indicated on Figure 4. These data are used in an economic decision model to develop the relevant labor pools for Navy jobs.

Data Sources

There are several data bases which can be used to obtain preliminary statistics for estimating the relevant labor pool. One of these is the most recent decenniel Census. Unfortunately, the Census is not updated frequently enough to reflect shifts that begin after the Census is taken. EEO is a case in point since the need for goal setting was not explicit until the Amendments in 1972 to the 1964 Civil Rights Act. Missing in the 1970 Census distributions would be the change of the role of women in the workforce. College enrollments of women in traditional male disciplines such as engineering is increasing at a rapid rate. To the extent that expected wages for such jobs preclude many of the current workforce and emphasize college graduates, the relevant labor pools are likely to be substantially affected. Such changes in the current and projected workforce argue for the most recent occupational data available by ethno-sexual category. Also data on the ethno-sexual mix of college and graduate school enrollments becomes necessary for projection of labor market availabilities.

- Current Employment Status (full-time, full-year/not full-time, full-year workers
- Year of Education Completed
- Age (in years)
- Race (white, not white)
- Race (black, not black)
- Ethnic (Spanish speaking, not Spanish speaking)
- Children 1 (number of children less than 6 years of age)
- Children 2 (number of children 7 to 13 years of age)
- Children 3 (number of children 14 to 18 years of age)
- Income of other workers in the household
- Estimated Hourly Wage
- Sampling Censor Modifier ($\lambda$)
- Predicted General Work Experience
- Occupation and Industry Codes (detailed Census code classifications)

Source: Bureau of Census Surveys

PUBLIC DATA PARAMETERS FOR INDIVIDUALS

EEO LABOR MARKET SUPPLY RATIOS

FIGURE 3

- Average Hourly Wage
- Starting Hourly Wage
- Top Hourly Wage
- Monetary Value of Benefits or Other Forms of Compensation
- Number of Years of Education completed at time of Entrance to the Job Classification
- Vocational Education Completed at time of Entrance to Classification
- Occupations of Entrants to Navy Jobs Prior to Navy Position (Code Categories Census/DONOL)
- DONOL Occupation Specific Work Experience of Entrants to Navy at Time of Entrance
- General Work Experience (all jobs) of Entrants to Navy Jobs at Time of Entrance
- Age, in years of Entrants to Jobs at Time of Entrance

INTERNAL NAVY DATA PARAMETERS

EEO LABOR MARKET SUPPLY RATIOS

FIGURE 4

Various forms of the 1970 Census as well as more recent public data surveys are available to the public either directly through the Census Bureau or through firms which provide processed data. One file which is sometimes used is the Public Use Sample (PUS) which contains a one in one hundred sample of the estimated 1970 population. There is also the Current Population Survey (CPS) which is an annual sample but contains a far smaller sample (one sample person represents approximately 1500 persons in the population). Both the PUS and the CPS are available from the Department of Commerce, Bureau of the Census on magnetic tape. The cost is only that of the tape, computer time, and staff time to make the tape. The Survey of Income and Education (SIE) was a one time only survey done in 1976. The sample size is approximately nine times larger than the CPS for 1976 (March) and contains detailed education and labor force participation information.

For EEO purposes, it is the experienced (employed and unemployed) workforce data that should be used. There are a number of ways to obtain data on the experienced (rather than currently employed) workforce. For example, there was a special run made of the 1970 Census for EEO purposes financed by a consortium of 100 large companies.[9] The output of this run available by counties and SMSA's is the experienced workforce for each race and sex grouping for all the occupations covered

9 This run was accomplished for the National Planning Data Corporation, Ithica, New York. For organizations not participating in the original data collection, the data can be purchased from NPDC.

by the Department of Labor's Dictionary of Occupational Titles (DOT). While this data is a useful starting point for comparative purposes, there are a number of reasons to try to seek more current data.

For public organizations, the Civil Rights Act of 1964 did not become operational until March 1972. While discriminatory action filing dates generally mark the initial period for discovery of employment information, the Supreme Court recently ruled that pre-Act employment practices could not usually be used in the determination of such cases.[10] Thus, on the basis of the Court's decisions, the use of 1970 Census data in setting EEO goals for public employees is questionable. In addition, the 1970 Census data basically reflects the general population which could easily have different ethno-sexual characteristics than the available workforce for a particular organization. This question will be overtaken by more recent data particularly if other data sources in addition to the 1970 Census are used to develop the needed comparisons.

In addition to possible legal difficulties (at least for public organizations), the use of more recent data is warrented on purely statistical grounds. The number of women entering the workforce

10 Hazelwood School District v. United States (45 USLW 4882 16177) and the International Brotherhood of Teamsters v. United States (145 USLW 4506 15177).

has increased significantly since 1970. In some cases this increase in women has actually caused the percentage of men to decline--such as in the clerical occupations. This is simply the result of the increase in the numerator in the parity ratio equation to account for the increase of women in the workforce.

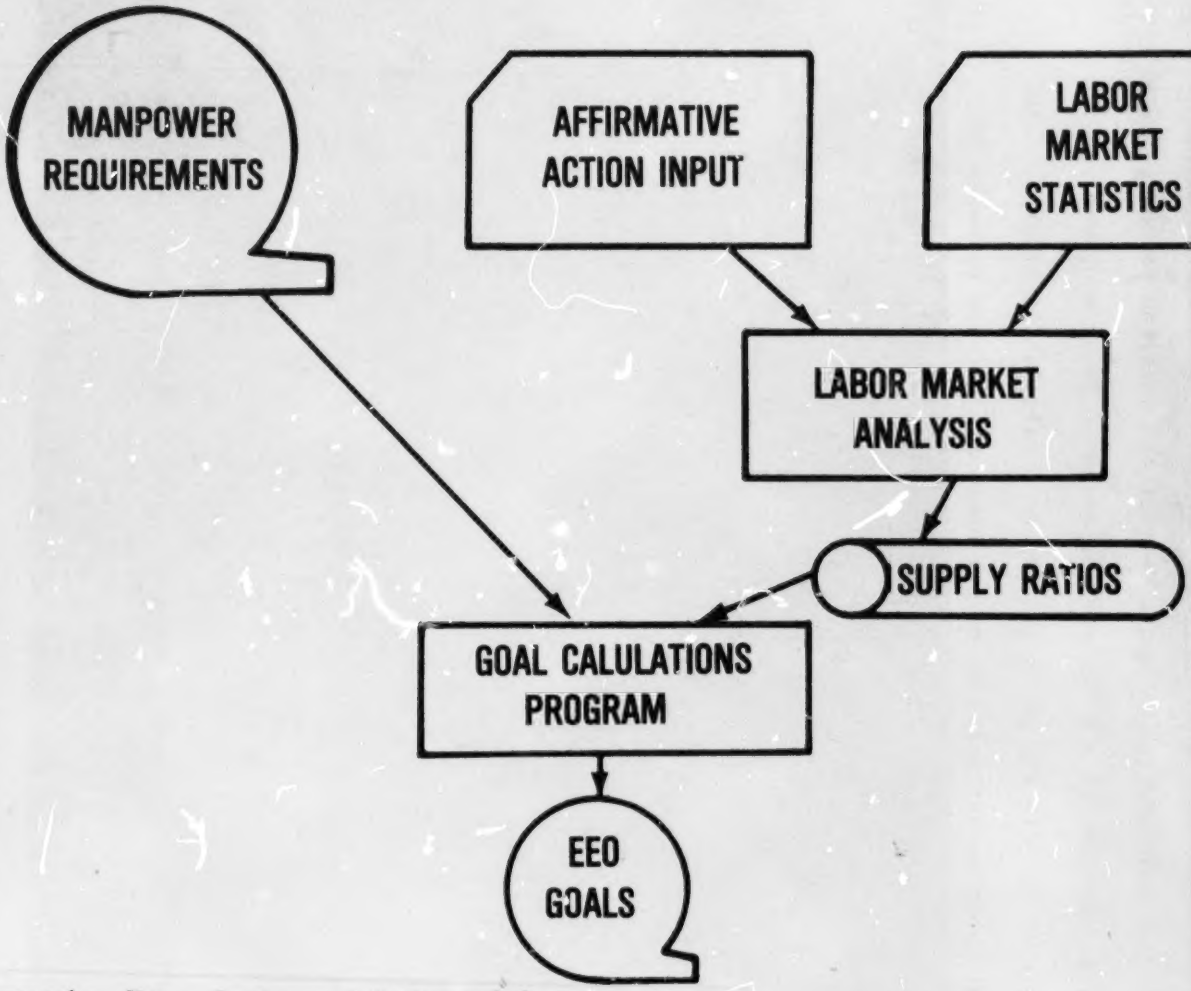
Fortunately there are useful data sources. As discussed previously, these include the CPS and the Survey of Income and Education (SIE). While the primary purpose for the SIE, collected by the Departement of Health, Education, and Welfare, was to help to answer questions in the administration of welfare programs, the SIE also contains all the data elements (see Figure 3) needed to estimate relevant labor pools. The sample is large enough to be useable in most of the major labor markets of the United States. This is particularly true when the SIE is supplemented with other data sources which are available.

In addition to actual counts or samples, there is a need for projected data. This is particularly true in the areas of projected educational attainments as far as the professional occupations are concerned. Also, there is a need to estimate the influx of women into the workforce. Particular attention is given to these data issues in the Navy system.

EEO Goals Planning and Accountability

A flow diagram depicting the Navy EEO goals determination system is shown on Figure 5. The Navy is using a "bottom up" estimation system. The manpower requirements reflect the workload of the organization irrespective of the EEO considerations. These manpower requirements are split into EEO goals via the goal calculation program. The external labor market supplies of personnel are entered by means of a table of supply ratios for each ethno-sexual category. The supply ratios are projected for both one and five years into the future. As has been discussed, the supply ratios are a combination of national and regional statistics. Any statistical bias is on the side of the general population statistics. Thus, when there is less precise information to develop a particular supply ratio, it is on the side of population parity rather than occupation parity. In this way statistical errors tend to favor Affirmative Action.

Once the EEO goals are obtained they are used in an accountability system. Projections are made of the EEO goals one and five years into the future. In this way it is possible to obtain both an immediate as well as a longer term reading as to the health of a particular organization's EEO program. These centrally developed goals are then evaluated locally with any differences negotiated to correct for situations not included in the central calculations. Once agreed upon, the local organization head signs off committing the organization.




Source: Burroughs, Korn, Lewis, and Niehaus [2]

U. S. NAVY CIVILIAN EEO GOAL DETERMINATION SYSTEM

FIGURE 5

At the end of the year the goals are evaluated by higher management for possible further in-depth review. Appropriate filters are included in the computer programs to limit the data to be evaluated to significant deviations from the goals. The whole process is repeated annually to reflect the most current picture of the internal and external environment.

Several reports are necessary for accountability and control purposes.[11] The first is an accountability report such as is shown in Figure 6. This report shows how well an organization did in relation to its goals and also provides planning information. The data columns or the reports indicate:

- The actual on-board in each ethno-sexual (race-sex) category in each job category at the beginning of the five-year accounting period.
- The actual on-board in each ethno-sexual category in each job category at the most current time period.
- The EEO goal in each ethno-sexual category in each job category for the current fiscal year.
- The discrepancies between the EEO goals and the current on-board population. (This version of the report is

11 The material on accountability is from Niehaus and Nitterhouse [13].

# EEO ACCOUNTABILITY REPORT
## SAMPLE REPORT
## BLACK MALE

| OCCUPATION | LEVEL | ABOARD SEP 76 | ABOARD SEP 77 | GOAL SEP 77 | DISCREP SEP 77 | GOAL SEP 81 | DESIRED CHANGE BY SEP 81 DIFF | DESIRED CHANGE BY SEP 81 PERCENT |
|---|---|---|---|---|---|---|---|---|
| SCI & ENG | GS 5-8 | 25 | 25 | 25 | 0 | 34 | 9 | 26.5 |
| | GS 9-12 | 350 | 348 | 345 | 3 | 340 | -8 | -2.4 |
| | GS 13-15 | 260 | 261 | 264 | -3 | 297 | 36 | 12.1 |
| | GS 16-18 | 2 | 2 | 2 | 0 | 3 | 1 | 33.3 |
| OTH PROF | GS 5-8 | 23 | 24 | 25 | -1 | 33 | 9 | 27.2 |
| | GS 9-12 | 62 | 64 | 64 | 0 | 76 | 12 | 15.8 |
| | GS 13-15 | 13 | 13 | 13 | 0 | 15 | 2 | 13.3 |
| ADMIN | GS 1-4 | 2 | 2 | 2 | 0 | 2 | 0 | 0.0 |
| | GS 5-8 | 151 | 174 | 189 | -15 | 340 | 166 | 48.8 |
| | GS 9-12 | 775 | 770 | 764 | 6 | 1,167 | 397 | 34.0 |
| | GS 13-15 | 113 | 112 | 112 | 0 | 114 | 2 | 1.8 |
| | GS 16-18 | 1 | 1 | 1 | 0 | 1 | 0 | 0.0 |
| TECHNICIAN | GS 1-4 | 145 | 144 | 144 | 0 | 144 | 0 | 0.0 |
| | GS 5-8 | 845 | 857 | 851 | 6 | 898 | 41 | 4.6 |
| | GS 9-12 | 697 | 695 | 694 | 1 | 687 | -8 | -1.2 |
| | GS 13-15 | 3 | 4 | 7 | -3 | 24 | 20 | 83.3 |
| CLERICAL | GS 1-4 | 913 | 972 | 1,056 | -84 | 1,638 | 666 | 40.1 |
| | GS 5-8 | 553 | 509 | 656 | -87 | 913 | 324 | 35.5 |
| | GS 9-12 | 15 | 18 | 17 | 1 | 25 | 7 | 28.0 |
| OTHER GS | GS 1-4 | 609 | 612 | 615 | -3 | 634 | 22 | 3.5 |
| | GS 5-8 | 442 | 471 | 463 | 8 | 437 | 28 | 6.2 |
| | GS 9-12 | 5 | 7 | 8 | -1 | 22 | 15 | 68.2 |
| TOTAL BLACK MALE | | 6,004 | 6,165 | 6,317 | -152 | 7,904 | 1,739 | 22.0 |

FIGURE 6

developed annually at the end of each fiscal year. At other times during the year, these data are omitted.)

- The EEO goal in each ethno-sexual category in each job category at the end of the five-year accounting period.
- The desired changes from the current on-board population at the end of the accounting period both in numbers and percentages.

Another factor which needs to be measured is the opportunities an organization had to meet the goals. For instance, after the goals were set, there may be constraints from higher headquarters which make it difficult to reach the goals. Also, a measurement may be made of how many opportunities for personnel actions were distributed among the various ethno-sexual categories. Figure 7 uses the transition rate program of the CAMAS system to develop the needed data. The data is sorted by ethno-sexual category within occupation-level. It shows for each ethno-sexual category in each occupation level:

- population at the start of the accounting period
- hires
- promotion
- other gains (i.e., lateral transfers from another occupation within the organization)
- opportunities for affirmative action (i.e., sum of hires, promotions, and other gains)

EEO OPPORTUNITIES REPORT

NAVYWIDE – FY77

ADMIN GS 9 –12

| | ACTUAL SEPT 76 | HIRES NO | % | PROMOTIONS NO | % | OTHER GAIN NO | % | TOT OPP NO | % | LOSSES NO | % | ACTUAL SEPT 77 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BLACK MALE | 775 | 38 | .030 | 66 | .043 | 26 | .033 | 130 | .036 | 85 | .029 | 820 |
| HISP MALE | 259 | 26 | .020 | 10 | .006 | 8 | .010 | 44 | .012 | 15 | .005 | 286 |
| OTHER MALE | 273 | 21 | .016 | 8 | .005 | 10 | .012 | 39 | .010 | 15 | .005 | 297 |
| WHITE MALE | 14,994 | 1,023 | .808 | 778 | .517 | 621 | .797 | 2,422 | .682 | 2,257 | .785 | 15,159 |
| BLACK FEMALE | 563 | 12 | .009 | 98 | .065 | 18 | .023 | 128 | .036 | 45 | .015 | 646 |
| HISP FEMALE | 48 | 1 | – | 14 | .009 | 1 | .001 | 16 | .004 | 7 | .002 | 57 |
| OTHER FEMALE | 49 | 2 | .001 | 11 | .007 | 1 | .001 | 14 | .003 | 9 | 003 | 54 |
| WHITE FEMALE | 3986 | 142 | .112 | 519 | .345 | 94 | .120 | 755 | .212 | 439 | .152 | 4302 |
| TOTAL | 20,947 | 1,265 | | 1,504 | | 779 | | 3,548 | | 2,874 | | 21,623 |

FIGURE 7

SAMPLE REPORT

- losses
- population at the end of the accounting period.

The percentage opportunity statistics are stated in terms of the totals for each occupation-level. A quick scan of the data can provide (1) which ethno-sexual groups are having personnel actions and of what kinds and (2) the percentage of the total that each ethno-sexual group is having of each personnel action. The percentages alone are not enough to measure the relative changes in the ethno-sexual groups. Goal information such as provided in Figure 3 is necessary to measure accountability since labor market statistics are relevant. The purpose of the opportunity report is to surface potential areas for further management attention. It can also be used to "account for" how often managers take advantage of personnel action opportunities to attain EEO objectives.

The transition data are also shown on an EEO dynamic report such as indicated by Figure 8. On this report, the data are shown sorted by occupation-levels within each ethno-sexual category. In this case, all the losses and gains for each ethno-sexual group are shown with the internal losses in one occupation-level becoming internal gains in one or more other occupation-level(s).

Comparisons of current period transition rates with planned or prior period actual transition rates can be used by superiors to assess

# EEO DYNAMICS FOR THE PERIOD MAR 75 TO MAR 76
## ALL NAVY

| OCCUPATION CATEGORY | GRADE GRP | ON BRD MAR 75 | LOSSES | | | | GAINS | | | | ON BRD MAR 76 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | INTERNAL | % | EXTERNAL | % | INTERNAL | % | EXTERNAL | % | |
| SOCIAL CATEGORY: BLACK MALE | | | | | | | | | | | |
| SCI AND ENG | GS5-9 | 24 | 11 | 45.8 | 4 | 16.7 | 7 | 29.2 | 8 | 33.3 | 24 |
| | GS9-12 | 345 | 11 | 3.2 | 25 | 7.2 | 15 | 4.3 | 16 | 4.6 | 340 |
| | GS13-15 | 279 | 12 | 4.3 | 16 | 5.7 | 16 | 5.7 | 1 | .4 | 268 |
| | GS16-18 | 2 | | | 1 | 50.0 | | | | | 1 |
| OTHER PROFESSIONALS | GS5-8 | 21 | 11 | 52.4 | 1 | 4.8 | 3 | 14.3 | 11 | 52.4 | 23 |
| | GS9-12 | 44 | 4 | 9.1 | 3 | 6.8 | 11 | 25.0 | 4 | 9.1 | 52 |
| | GS13-15 | 12 | 1 | 8.3 | 1 | 8.3 | 1 | 8.3 | 1 | 8.3 | 12 |
| MANAGERS AND ADMIN | GS1-4 | 11 | 5 | 45.5 | 5 | 45.5 | | | | | 1 |
| | GS5-8 | 188 | 60 | 31.9 | 16 | 8.5 | 35 | 18.6 | 23 | 12.2 | 170 |
| | GS9-12 | 690 | 29 | 4.2 | 60 | 8.7 | 108 | 15.7 | 32 | 4.6 | 741 |
| | GS13-15 | 114 | 4 | 3.5 | 13 | 11.4 | 12 | 10.5 | 3 | 2.6 | 112 |
| | GS16-18 | 1 | | | | | | | | | 1 |
| SUB PROF AND TECH | GS1-4 | 143 | 48 | 33.6 | 22 | 15.4 | 13 | 9.1 | 43 | 30.1 | 129 |
| | GS5-8 | 795 | 110 | 13.8 | 61 | 7.7 | 108 | 13.6 | 69 | 8.7 | 801 |
| | GS9-12 | 629 | 37 | 5.9 | 37 | 5.9 | 89 | 14.1 | 34 | 5.4 | 678 |
| | GS13-15 | 4 | 1 | 25.0 | | | | | | | 3 |
| CLERICAL | GS1-4 | 890 | 121 | 13.6 | 175 | 19.7 | 56 | 6.3 | 180 | 20.2 | 830 |
| | GS5-8 | 587 | 63 | 10.7 | 50 | 8.5 | 72 | 12.3 | 26 | 4.4 | 572 |
| | GS9-12 | 16 | 1 | 6.3 | 1 | 6.3 | 1 | 6.3 | 1 | 6.3 | 16 |
| | GS13-15 | 1 | 1 | 100.0 | | | | | | | |
| SERVICE | GS1-4 | 505 | 84 | 16.6 | 116 | 23.0 | 8 | 1.6 | 217 | 43.0 | 530 |
| | GS5-8 | 373 | 17 | 4.6 | 33 | 8.8 | 74 | 19.8 | 12 | 3.2 | 409 |
| | GS9-12 | 3 | | | | | 2 | 66.7 | 1 | 33.3 | 6 |
| TOTAL BLACK MALE | | 5,677 | 631 | 11.1 | 640 | 11.3 | 631 | 11.1 | 682 | 12.0 | 5,719 |

SAMPLE REPORT
FIGURE 8

whether managers are using available personnel action opportunities to increase the rate of transition of minorities into job categories in which they are presently underrepresented (as evidenced by discrepancies from goals). Appropriate rewards or punishment meted as a result of these reports should influence managers to take desired actions. Of course, normal rules of statistical inference must be applied to support statistical conclusions taken from the data.[12] However, even in the absence of "statistically significant" inferences, these reports serve as a basis for comparisons between managers and discussion of areas and methods of improvement.

Models are being developed to provide analytical evaluations at both the local and headquarters level. At the local level models can be used to assist in developing affirmative action plans for those parts of the workforce which are developed and recruited locally. At the headquarters level, the goals can be used for impact analysis of the systemic aspects of the affirmative action program. The models of the Computer-Assisted Manpower Analyses System (CAMAS) are being extended to include EEO goals. This use of models at the headquarters level permits an evaluation of possible policy changes without changing the existing policies until a better idea of the impacts are known. In this use of the model, there is generally neither the time nor the reason for adjusting all the detailed EEO goals when an analysis is made.

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12 For an in-depth discussion of statistical inference in relation to EEO, see J. Ledvinka [10].

The proposed EEO goals system is being tested under operational conditions. One of the results more than likely will be an improved EEO goals system. This system will then be proposed for implementation through the normal Navy procedures.

Further research will also be needed. Particular emphasis will be on (1) improving the external labor market analysis part of the system and (2) improvement of internal mobility planning systems. These efforts will follow the pattern of the initial EEO modeling research by requiring prototype testing and organizational acceptance prior to implementation.

EEO planning encompasses almost all aspects of human resources planning. There is the need to integrate EEO planning with workload planning and external labor market analysis. The system depends on a reasonable estimate of the available labor pools. At the same time, the workload drives the system and issues such as upward mobility and affirmative action are important. Thus, only an integrated approach will provide the improvements in the system that are needed. Additional reports in this series will touch on these issues.

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